



EG&G ROCKY FLATS INC  
ROCKY FLATS PLANT P O BOX 464 GOLDEN COLORADO 80402-0464 (303) 966 7000

DATE 4/9/92  
TO C B Gee Remediation Programs  
FROM R S Roberts Remediation Programs  
SUBJECT RISK FROM TOLUENE IN SOIL AT THE FRENCH DRAIN

A risk analysis was performed to evaluate the risk associated with the toluene in the soils excavated for the French Drain Geotechnical Investigation. This analysis will tell us if the toluene in the soils poses a risk to human health given a direct exposure scenario.

Results were obtained using the methods described in Risk Assessment Guidance For Superfund (US EPA 1989) and OSWER Directive 9285 6-03 "Human Health Evaluation Manual, Supplemental Guidance 'Standard Default Exposure Factors' ". Default values were also taken from the Public Health Risk Assessment, 881 Hillside Area (OU-1), Technical Memorandum No 6, Exposure Scenarios. Direct Ingestion of Toluene in Soil, Dermal Contact of Toluene in Soil and Inhalation of Toluene in Soil will be the exposure pathways evaluated and are outlined in Attachment I.

Toluene is considered to be a non-carcinogen and is not listed as a carcinogen. Therefore a hazard quotient (HQ) is computed for each exposure pathway for toluene. The three HQs will be summed to arrive at a Hazard Index (HI). If the HI is less than one the risk is considered acceptable.

Using the maximum toluene concentration found 1200 ppm, the HI was computed to be  $7.6 \times 10^{-3}$ . Soil ingestion contributed 79% of this HI and dermal contact contributed 21%. The inhalation pathway contributed less than 0.1% to the HI. It is customary to use the average concentration of an analyte in this type of risk calculation since ingestion and inhalation occur over very long periods of time, but the maximum concentration is used here to illustrate how small the toluene concentrations are.

Boreholes for which complete data was available are outlined in Attachment II. No data was available for boreholes B303990, B304090, B304190 and B304290. Some data had not yet been received for boreholes B303690 and B303790.

If you have any questions or need support in presenting this information please contact me.

cc G M Anderson  
D M Smith

**ADMIN RECORD**

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REVIEWED FOR CLASSIFICATION/UCNI
BY G T Os'diek <i>820</i>
DATE 7-12-93